



[10191/4030]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicants : Christian DANZ et al.
Serial No. : 10/564,371
Filed : July 19, 2006
For : **METHOD AND DEVICE FOR DETERMINING THE
POSITION AND/OR THE ANTICIPATED POSITION OF
A VEHICLE DURING A PARKING OPERATION IN
RELATION TO THE ONCOMING LANE OF A MULTI-
LANE ROADWAY**

Group Art Unit : 2612
Confirmation No. : 7826
Examiner : Hongmin FAN

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Jong H. Lee

APPELLANTS' APPEAL BRIEF
UNDER 37 C.F.R. § 41.37

S I R :

Applicants electronically filed a Notice of Appeal dated April 27, 2009, appealing from the Final Office Action dated October 30, 2008, in which claims 11, 12 and 14-20 of the above-identified application were finally rejected. This Brief is submitted by Applicants in support of their appeal.

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I. REAL PARTY IN INTEREST

The real party in interest in the present appeal is Robert Bosch GmbH of Stuttgart, Germany. Robert Bosch GmbH is the assignee of the entire right, title, and interest in the present application.

II. RELATED APPEALS AND INTERFERENCES

No appeal or interference which will directly affect, or be directly affected by, or have a bearing on, the Board's decision in the pending appeal is known to exist to the undersigned attorney or is believed by the undersigned attorney to be known to exist to Applicants.

III. STATUS OF CLAIMS

Claims 11, 12 and 14-20 are currently pending in the present application and are rejected. Claims 11, 12 and 14-20 are being appealed. Among the appealed claims, claims 11 and 17 are independent; claims 12 and 14-16 ultimately depend on claim 11; and claims 18-20 ultimately depend on claim 17. Claims 1-10 and 13 have been canceled.

IV. STATUS OF AMENDMENTS

No amendment has been filed subsequent to the Final Rejection mailed on October 30, 2008.

V. SUMMARY OF CLAIMED SUBJECT MATTER

With respect to independent claim 11, the present invention provides a method for determining at least one of a position and an anticipated position of a vehicle (Fig. 1, vehicle 10) during a parking operation in relation to an oncoming lane (Fig. 1, lane 16) of a multi-lane roadway, (Substitute Specification, p. 2, l. 2-3 and 15-17; p. 3, l. 16-18), the method including:

determining a position of the oncoming lane (Fig. 1, lane 16) in relation to the vehicle (Fig. 1, vehicle 10) at a beginning of the parking operation; (p. 2, l. 8-9; p. 3, l. 8-11);

determining an anticipated final parking position (Fig. 1, position within parking space 22) of the vehicle using at least one electronic sensor (Fig. 2, sensor 24); (p. 3, l. 1-2 and 11-12);

determining an anticipated parking trajectory (Fig. 1, arrow emanating from the back of vehicle 10 and pointing into parking space 22) of the vehicle using the anticipated final parking position of the vehicle determined by the at least one electronic sensor; (p. 3, l. 12-15);

determining at least one potential intersection of the anticipated parking trajectory with the oncoming lane (Fig. 1, lane 16); (p. 2, l. 11-12; p. 5, l. 9-22); and

providing a signal in the presence of at least one actual intersection of the parking trajectory with the oncoming lane (Fig. 1, lane 16), the signal being processed (p. 2, l. 13-14; p. 3, l. 5-7; p. 4, l. 29 – p. 5, l. 2).

With respect to independent claim 17, the present invention provides a device for determining at least one of a position and an anticipated position of a vehicle (Fig. 1, vehicle 10) during a parking operation in relation to an oncoming lane (Fig. 1, lane 16) of a multi-lane roadway, (p. 3, l. 16-18), the device including:

an arrangement (Fig. 2, sensor 24) for determining a position of the oncoming lane (Fig. 1, lane 16) in relation to the vehicle at a beginning of the parking operation; (p. 3, l. 8-11 and 19-20);

at least one electronic sensor (Fig. 2, sensor 24) configured to determine an anticipated final parking position of the vehicle; (p. 3, l. 1-2 and 11-12);

an arrangement for determining an anticipated parking trajectory (Fig. 1, arrow emanating from the back of vehicle 10 and pointing into parking space 22) of the vehicle, wherein the anticipated parking trajectory is determined using the anticipated final parking position of the vehicle determined by the at least one electronic sensor (Fig. 2, sensor 24); (p. 3, l. 12-15 and 21);

an arrangement for determining at least one potential intersection of the anticipated parking trajectory with the oncoming lane (Fig. 1, lane 16); (p. 3, l. 22-23; p. 5, l. 9-22) and

an arrangement for providing a signal in the presence of at least one actual intersection of the parking trajectory with the oncoming lane (Fig. 1, lane 16), the signal being processed (p. 3, l. 5-7 and 24-26; p. 4, l. 29 – p. 5, l. 2).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The following ground of rejection is presented for review on appeal in this case:

(A) Whether pending claims 11, 12 and 14-20 are unpatentable under 35 U.S.C. § 103(a) as obvious over U.S. Patent Publication No. 2002/0041239 by Shimizu et al. ("Shimizu") in view of U.S. Patent No. 7,038,577 to Pawlicki et al. ("Pawlicki").

VII. ARGUMENTS

Claims 11, 12 and 14-20 have been rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Publication No. 2002/0041239 by Shimizu et al. ("Shimizu") in view of U.S. Patent No. 7,038,577 to Pawlicki et al. ("Pawlicki").

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references, and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. M.P.E.P. §2143. In addition, as clearly indicated by the Supreme Court, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. See KSR Int'l Co. v. Teleflex, Inc., 82 U.S.P.Q.2d 1385 (2007). In this regard, the Supreme Court further noted that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (Id., at 1396). To the extent that the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art." (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Independent claim 11 recites, in relevant part, a method for "**determining at least one of a position and an anticipated position of a vehicle during a parking operation in relation to an oncoming lane of a multi-lane roadway,**" which method includes

“determining a position of the oncoming lane in relation to the vehicle at a beginning of the **parking operation**; . . . ; determining at least one **potential intersection of the anticipated parking trajectory with the oncoming lane**; and providing **a signal in the presence of at least one actual intersection of the parking trajectory** with the oncoming lane.” Independent device claim 17 recites substantially similar features as the above-recited features of claim 11. In contrast, as explained in detail below, the overall teachings of Shimizu and Pawlicki simply do not suggest anything about the above-recited claimed limitations.

First, nothing in Shimizu or Pawlicki suggests anything even remotely related to **“determining a position of the oncoming lane in relation to the vehicle** at a **beginning** of the **parking operation**.” In Shimizu, the parking assistance system utilizes a maximum steering angle, i.e., the “expected parking position is set at a position that the subject vehicle reaches when reversing with the **steering wheel turned fully to the left**” (Shimizu, Abstract), and there is simply no consideration at all regarding the oncoming lane, let alone **“determining a position of the oncoming lane in relation to the vehicle** at a **beginning** of the **parking operation**.” Similarly, there is simply no disclosure in Pawlicki regarding **“determining a position of the oncoming lane in relation to the vehicle** at a **beginning** of the **parking operation**.”

Second, with respect to the claimed feature of “determining at least **one potential intersection** of the **anticipated parking trajectory** with the **oncoming lane**,” the Examiner’s citation of Pawlicki simply does not support the obviousness conclusion. In support of the rejection, the Examiner contends on page 3 of the Final Office Action that “the lane departure warning system [of Pawlicki] may be operable in response to a single forward facing camera to monitor the lane markings 113e along the road surface and monitor the potential presence of **oncoming traffic** in an adjacent lane or lanes.” However, the lane-departure warning system of Pawlicki has absolutely nothing to do with a parking-assistance technique, and there is clearly no suggestion in Pawlicki regarding determination of an intersection of “the **anticipated parking trajectory** with the **oncoming lane**.”

In an attempt to overcome the above-noted critical deficiency, the Examiner contends in the Advisory Action of March 25, 2009, that **“claimed language is meant oncoming traffic,”** since it is theoretically possible that the oncoming lane could be empty and thus not

present any danger. However, there is simply no reasonable factual or legal basis to support the Examiner's asserted claim interpretation. The fundamental rules of claim interpretation are: (a) the words of a claim must be given their plain meaning unless the plain meaning is inconsistent with the specification (MPEP 2111.01 I, citing In re Zletz, 13 U.S.P.Q.2d 1320 1322 (Fed. Cir. 1989)); and (b) claims must be given the broadest reasonable interpretation that is consistent with the specification and the interpretation that those skilled in the art would reach (MPEP 2111, citing Phillips v. AWH Corp., 75 U.S.P.Q.2d 1321 (Fed. Cir. 2005), and In re Cortright, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999)). Given the fact that the present specification unequivocally describes detection of a car's protrusion into "oncoming lane 16" (see, e.g., Substitute Spec., p. 5, l. 1), and given the fact that the present specification does not in any way equate "oncoming lane" with "oncoming traffic," there is simply no basis to contend that the claimed "oncoming lane" language should be interpreted as "oncoming traffic."

The fact that the lane-departure warning system of Pawlicki is fundamentally unrelated to the present claimed invention is highlighted by the different triggering events for the warning signal in Pawlicki and in the present claimed invention. In the Pawlicki system, even "if the vehicle has already begun to cross into the oncoming traffic lane before oncoming traffic is detected, the lane departure warning system may **issue the urgent warning when oncoming traffic is detected**," (col. 25, l. 17-20), i.e., the triggering event for the warning is not merely crossing the lane, but **whether oncoming traffic is actually detected**. This is fundamentally different from the present claimed invention which conditions the issuance of an alert signal (or a signal to trigger automatic braking) on the presence of intersection of the parking trajectory with the **oncoming lane**.

Independent of the above, the actual disclosures of Shimizu and Pawlicki further teach away from a method for "**determining at least one of a position and an anticipated position of a vehicle during a parking operation in relation to an oncoming lane of a multi-lane roadway**," as recited in claim 11 (and as similarly recited in claim 17). As noted above, the parking-assist technique of Shimizu is based on the use of the **maximum steering angle**, i.e., the "expected parking position is set at a position that the subject vehicle reaches when reversing with the **steering wheel turned fully to the left**." (Shimizu, Abstract). Not only does Shimizu completely ignore the potential for intersection with the oncoming lane, but by using a maximum steering angle, the technique of Shimizu clearly creates a **likely**

intersection between the controlled vehicle and the oncoming lane. Similarly, the main focus of Pawlicki is an edge detection algorithm which detects edges of objects in captured images, and in turn determines whether a vehicle or object is present based on whether the detected edges match the physical characteristics of vehicles or recognized objects so as to avoid any impending collision. Pawlicki provides that the “system processes the detected edges within the image data subset to determine if they correspond with physical characteristics of **vehicles and other objects** to determine whether the detected edge or edges is/are **part of a vehicle, or a significant edge or object at or toward the subject vehicle.**” (Pawlicki, column 2, lines 59 to 64). Significantly, Pawlicki further provides that filtering mechanisms are used that “substantially eliminate or substantially **ignore** edges or pixels that are not or **cannot be indicative of a vehicle or significant object.**” (Pawlicki, col. 2, l. 65 - col. 3, l. 2). Thus, the focus of the Pawlicki reference is **detection of a vehicle or a significant object**. Even in the ancillary lane-departure warning application of Pawlicki, the triggering event for the warning signal (i.e., the main focus) is the detection of **oncoming traffic**, not detection of **crossing an oncoming lane**.

Still further, the overall teachings of Shimizu and Pawlicki contradict the modification asserted by the Examiner. It is a fundamental rule of obviousness analysis that if the asserted modification of a reference destroys the original intent, purpose, or function of the invention being modified, then there is no suggestion or motivation to make the proposed modification. *See In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Shimizu reference clearly indicates that an object of the invention is to simplify and reduce the cost of its system, e.g., “there is **no need for an image processing device** for detecting the target parking position or need for calculation of the driver’s operations required for moving the subject vehicle along an expected trajectory, the parking aid system can be realized with very low cost.” (Shimizu, paragraph [0009]). In contrast, Pawlicki relies heavily on image gathering, processing, and calculating to detect edges of images to determine whether something is a vehicle or an object of significance. Thus, not only does Shimizu teach away from Pawlicki, but the asserted modification would clearly defeat the purpose and intent of the Shimizu reference, thereby negating the obviousness conclusion as a matter of law.

For at least the foregoing reasons, Applicants submit that the overall teachings of Shimizu and Pawlicki simply do not suggest “**determining at least one of a position and an anticipated position of a vehicle during a parking operation in relation to an oncoming**

lane of a multi-lane roadway,” including “determining a position of the oncoming lane in relation to the vehicle at a beginning of the parking operation; . . . ; determining at least one potential intersection of the anticipated parking trajectory with the oncoming lane; and providing a signal in the presence of at least one actual intersection of the parking trajectory with the oncoming lane.” Therefore, claims 11 and 17, as well as dependent claims 12, 14-16 and 18-20, are allowable over Shimizu and Pawlicki.

VIII. CONCLUSION

For the foregoing reasons, it is respectfully submitted that the final rejection of claims 11, 12 and 14-20 should be reversed.

Claims Appendix, Evidence Appendix and Related Proceedings Appendix sections are found in the attached pages.

Respectfully submitted,

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APPENDIX TO APPELLANTS' APPEAL BRIEF
UNDER 37 C.F.R. § 41.37

CLAIMS APPENDIX

The claims involved in this appeal, claims 11, 12 and 14-20, in their current form after entry of all amendments presented during the course of prosecution, are set forth below:

11. A method for determining at least one of a position and an anticipated position of a vehicle during a parking operation in relation to an oncoming lane of a multi-lane roadway, comprising:

determining a position of the oncoming lane in relation to the vehicle at a beginning of the parking operation;

determining an anticipated final parking position of the vehicle using at least one electronic sensor;

determining an anticipated parking trajectory of the vehicle using the anticipated final parking position of the vehicle determined by the at least one electronic sensor;

determining at least one potential intersection of the anticipated parking trajectory with the oncoming lane; and

providing a signal in the presence of at least one actual intersection of the parking trajectory with the oncoming lane, the signal being processed.

12. The method as recited in Claim 11, wherein the anticipated parking trajectory is determined based on a position of the vehicle at the beginning of the parking operation and an anticipated final parking position of the vehicle.

14. The method as recited in Claim 12, wherein:

the position of the vehicle at the beginning of the parking operation, the position of the oncoming lane in relation to the vehicle at the beginning of the parking operation, and the anticipated final parking position of the vehicle are determined using at least one of an ultrasonic sensor, a radar sensor, a lidar sensor, a video sensor, a steering angle sensor, and a lane departure warning system.

15. The method as recited in Claim 11, further comprising:

classifying an object approaching the vehicle in the oncoming lane with regard to an actual level of danger of the object in a potential collision with the vehicle via a video-based camera system.

16. The method as recited in Claim 15, further comprising:

in the presence of the at least one actual intersection, providing a signal only if the object approaching in the oncoming lane presents a high level of danger in the potential collision.

17. A device for determining at least one of a position and an anticipated position of a vehicle during a parking operation in relation to an oncoming lane of a multi-lane roadway, comprising:

an arrangement for determining a position of the oncoming lane in relation to the vehicle at a beginning of the parking operation;

at least one electronic sensor configured to determine an anticipated final parking position of the vehicle;

an arrangement for determining an anticipated parking trajectory of the vehicle, wherein the anticipated parking trajectory is determined using the anticipated final parking position of the vehicle determined by the at least one electronic sensor;

an arrangement for determining at least one potential intersection of the anticipated parking trajectory with the oncoming lane; and

an arrangement for providing a signal in the presence of at least one actual intersection of the parking trajectory with the oncoming lane, the signal being processed.

18. The device as recited in Claim 17, wherein:

the arrangement for determining the position of the oncoming lane in relation to the vehicle includes one of at least one ultrasonic sensor, at least one radar sensor, at least one lidar sensor, and at least one video sensor.

19. The device as recited in Claim 17, wherein:

the arrangement for determining the position of the oncoming lane in relation to the vehicle is connected to an onboard computer of the vehicle.

20. The device as recited in Claim 17, further comprising at least one of:

an arrangement for processing the provided signal and for alerting a driver of the vehicle; and

an arrangement for interrupting the parking operation.

EVIDENCE APPENDIX

In the present application, there has been no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132, or other evidence entered by the Examiner and relied upon by Appellants in the present appeal.

RELATED PROCEEDINGS APPENDIX

No appeal or interference which will directly affect, or be directly affected by, or have a bearing on, the Board's decision in the pending appeal is known to exist.